

# Redstone Arsenal Installation Compliance & Natural Resources Geographic Information System (GIS) Program

**Title:** Development of a Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE) based Geographic Information System (GIS) Database Program

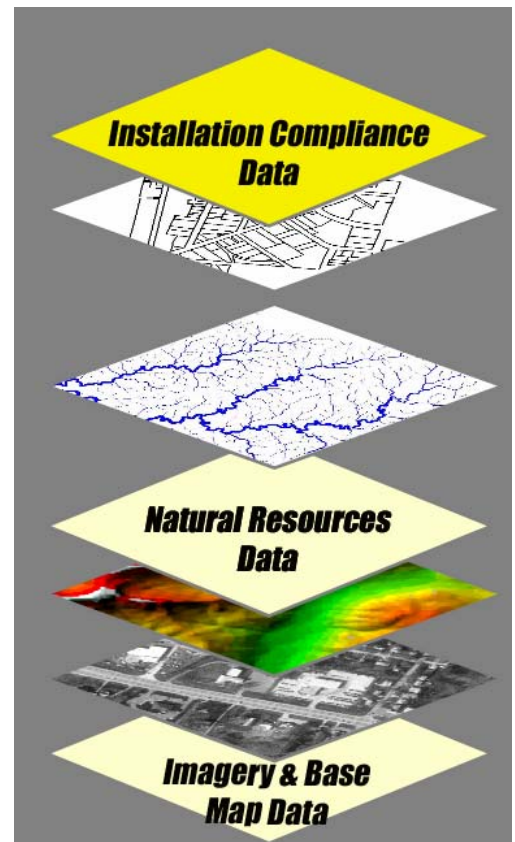
**Installation:** Redstone Arsenal, Alabama

**POC:** Tim Heinse (256) 842-6488

**Mission Benefits:** This program consolidates into one comprehensive (SDSFIE) database most of the spatial and attribute data associated with the Environmental programs for Installation Compliance and Natural Resources. The program will enable users to conduct environmental impact analysis, program management, resource analysis, and other geospatial data requirements. In conjunction with the GIS programs for Installation Restoration and Public Works GIS gives us the tools necessary for these tasks and will ensure we meet the geospatial data requirements for an enterprise GIS system at Redstone Arsenal. The completed database will be linked to a web-based application that enables multiple users at many levels to access the data for updates, reviews, and analysis. This standard format allows for easy data sharing through a common geodatabase.

**Cost Benefits:** The SDSFIE provides increased savings by ensuring a comprehensive geospatial database is developed and available to all concerned individuals and agencies. It provides a method of ensuring greater accuracy of both spatial and attribute data through field work, and content review throughout the database development process. It provides increased value to legacy data by the documentation of appropriate metadata. Through GIS modeling and spatial analysis users can ask the “what if” questions as a prelude to and in conjunction with future project developments. This central repository of spatial data layers allows for the rapid creation of appropriate maps and database tables. It is an integral part in ensuring Redstone Arsenal’s compliance with all current and future GIS data requirements.

**Environmental Benefits:** The GIS provides an essential means of ensuring that all cultural and natural resources and installation compliance spatial data is well documented. This aids in the process of environmental and cultural assessments, provides appropriate information for permit renewal and project reviews, and helps enable compliance with all appropriate regulatory requirements.



**Description:** The SDSFIE based GIS is a standardized system for capturing, storing, retrieving, analyzing, and displaying geographically referenced information, i.e. data identified according to its location. This enterprise GIS system is designed to support the mission of the Army by providing soldiers, staff, and decision makers quick access to easy to use, spatially enabled data in near real time. This relational database resides in a Microsoft SQL database environment that is accessible by multiple users and editable by appropriate geodatabase managers. Spatial analysis is that set of analytical methods (i.e.... proximity, adjacency, coincidence, and distance to) which requires access to both the attributes of the object under study and to their locational information.

**Description, continued:** Additionally, metadata, pedigree data about the who, why, when, where, and how the original data was obtained, is developed in order to document the quality of the spatial data and its attributes.

This system has been designed to meet the U.S. Army's GIS goals to:

- Eliminate Redundant Data/Systems
- Document Data According to Federal Geographic Data Commission (FGDC)
- Share Documentation and Spatial Data
- Migrate to an Enterprise GIS
- Use Common Data Model (Spatial Data Standard for Facilities, Infrastructure, and Environment (SDSFIE))
- Use Common Datum/Projections

**Regulatory Drivers (if any):** None at present, currently in development are Draft Army Reg. 115-5 and the Draft Installation and Environmental Geospatial Policy.

**Lessons Learned:**

1. Prior to this project both geospatial and attribute data resided in many different locations.
2. Formats for some of the spatial & attribute data were not compatible with the current software and required conversion in order to be useable.
3. Much of the existing spatial data lacked attribute information.
4. Much of the existing data lacked metadata.

**Point of Contact:**

Installation POC: Terry W. Hazle, Chief, Environmental Management Division, 256-876-6122

Vendor POC: Timothy J. Heinse, Sr. GIS Database Manager, AMTEC Corp. 256-842-6488



*Example 1: UAV Project review map.*



*Example 2: Common Installation Map*